

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number  
**WO 2005/040874 A2**

(51) International Patent Classification<sup>7</sup>: **G02B 6/12**

Aston University, Department of Electronic Engineering,  
Aston Triangle, Birmingham B4 7ET (GB).

(21) International Application Number:  
PCT/GB2004/004334

(74) Agents: **BARNFATHER, Karl** et al.; Withers & Rogers,  
Goldings House, 2 Hays lane, London, SE1 2HW (GB).

(22) International Filing Date: 11 October 2004 (11.10.2004)

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0323922.5 11 October 2003 (11.10.2003) GB

(71) Applicant (*for all designated States except US*): **ASTON UNIVERSITY** [GB/GB]; Department of Electronic Engineering, Aston Triangle, Birmingham B4 7ET (GB).

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **KHRUSCHEV, Igor** [GB/GB]; Aston University, Department of Electronic Engineering, Aston Triangle, Birmingham B4 7ET (GB). **OKHRIMCHUCK, Andrei** [RU/GB]; Aston University, Department of Electronic Engineering, Aston Triangle, Birmingham B4 7ET (GB). **SHESTAKOV, Alexander** [RU/GB]; Aston University, Department of Electronic Engineering, Aston Triangle, Birmingham B4 7ET (GB). **DUBOV, Mykhaylo** [UA/GB]; Aston University, Department of Electronic Engineering, Aston Triangle, Birmingham B4 7ET (GB). **BENNION, Ian** [GB/GB];

**Published:**

— *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: LASER INSCRIPTION OF OPTICAL STRUCTURES IN CRYSTALS

(57) Abstract: A method of altering the refractive index of a region of a crystal comprising focusing a pulsed laser beam at a desired position within the crystal and moving the focused beam along a path such that the focussed beam alters the refractive index of the region of the crystal along the path.

WO 2005/040874 A2